October 2000 FCC Visit

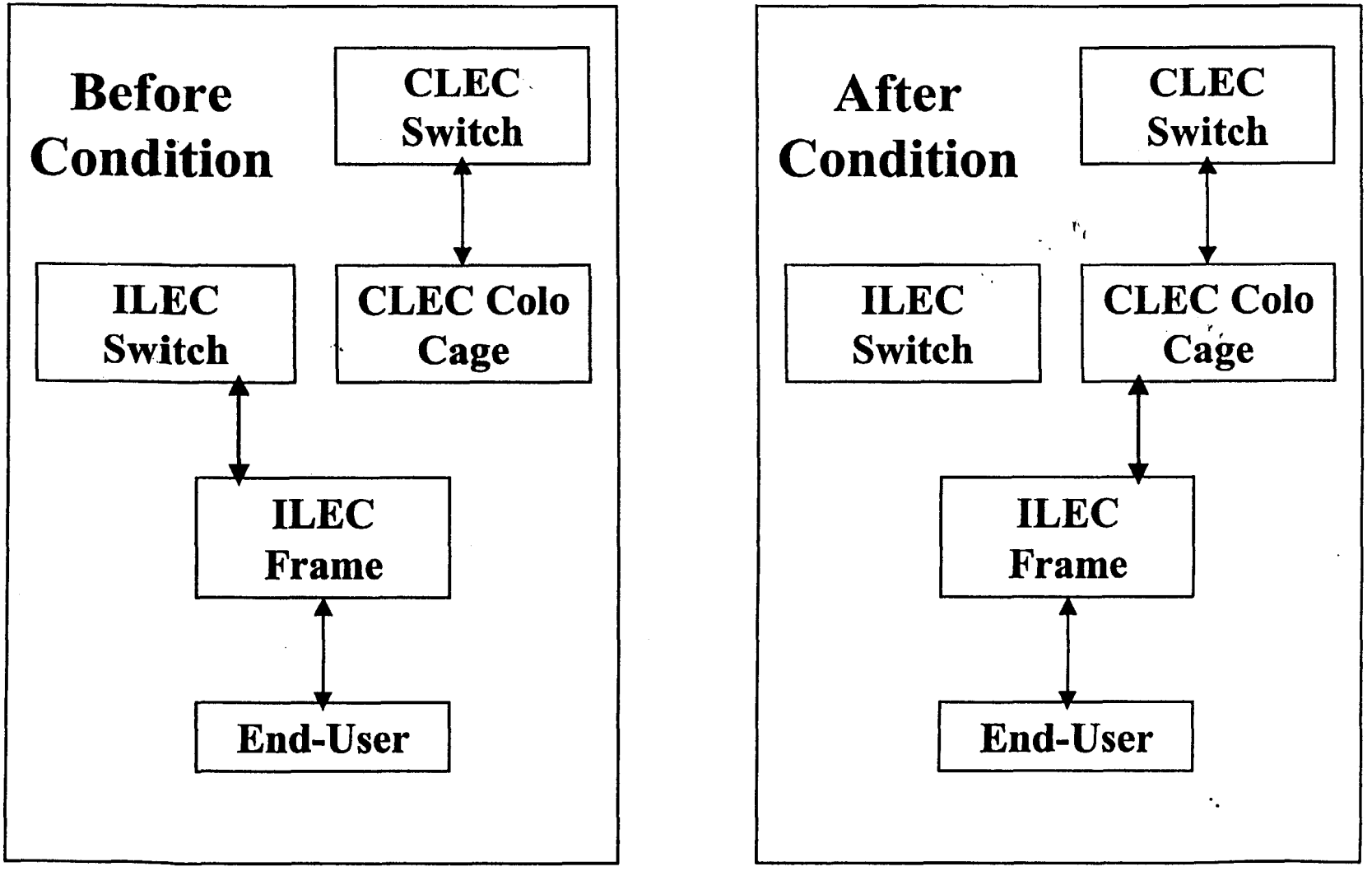
UNE Loop Overview

UNE Loop Offerings

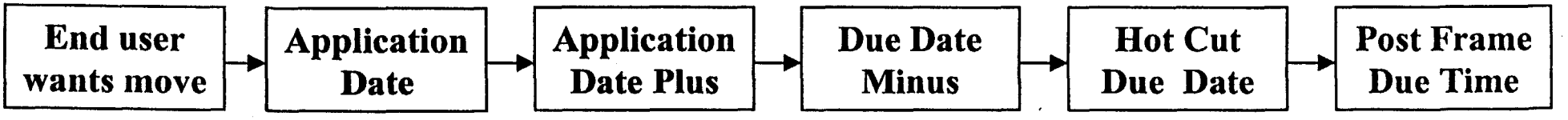
- **Array of products for different services**
  - Analog (POTS)
  - Digital (DSL, ISDN)
- **Loops provisioned in several ways**
  - Reuse of existing loop
    - Hot Cuts (VZ to CLEC, CLEC to CLEC)
    - Line Sharing
  - CLECs order new loop

UNE Loop Hot Cuts

Simplified Hot Cut



Simplified Hot Cut Process



- End User contacts CLEC looking to move existing service from Verizon to CLEC

- CLEC sends LSR
- VZ either queries or accepts and issues LSRC
- Order flows to VZ Facility Assignment, RCCC, RCMAC

- RCCC verifies order
- RCCC sends WFA / DI tickets to Frame

- VZ LNP Trigger due
- Frame verifies off (VZ) and on (CLEC) appearance on MDF
- RCCC contacts CLEC only if problems

- RCCC obtains Go / No Go from CLEC, advising Frame of direction
- If Go, Frame completes, notifies RCCC who advises CLEC of cut status

- VZ completes order, eventually pulling translation
- CLEC refers post cut troubles to RCMC

UNE / Retail Digital Loops:

Similar, yet different

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Retail	*Wholesale*
VZ POTS	*xDSL*
VZ Infospeed	*Linesharing*
VZ ISDN	*2 Wire Digital*

- **Different:**
  - Technologies
  - Testing
  - Installation Activities
  - Offered Intervals

Different Technologies

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- **Infospeed vs. xDSL**
  - Infospeed - add on to working loop.
  - xDSL - requires new loop.
- **ISDN vs. 2 Wire Digital**
  - ISDN - use copper when available (only 20% on DLC).
  - 2w Digital - many used when only DLC is available (48% on DLC)

Different Testing

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- **Infospeed vs. xDSL**
  - Infospeed & Linesharing
    - Has Dial Tone
    - Can Test Loop with MLT
  - xDSL
    - Requires New Loop
    - No Dial Tone, No Battery, No MLT, Some Co-op Testing
- **ISDN vs. 2 wire Digital**
  - ISDN - Circuit has SPIDs and Dial Tone (80% of Retail ISDN are installed on Copper)
  - 2w Digital - New loop, No Dial Tone, DLC card options not standard.

Different Installation Activities

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- **Infospeed & Linesharing**
  - No Removal of Load Coils or Bridged Tap
  - Minimal level of field dispatch (Customer already working on Line), possible LST.
- **xDSL**
  - May involve:
    - Clearing defects
    - Finding Good Pair
    - LST
    - 100% Dispatch

Different Offered Intervals

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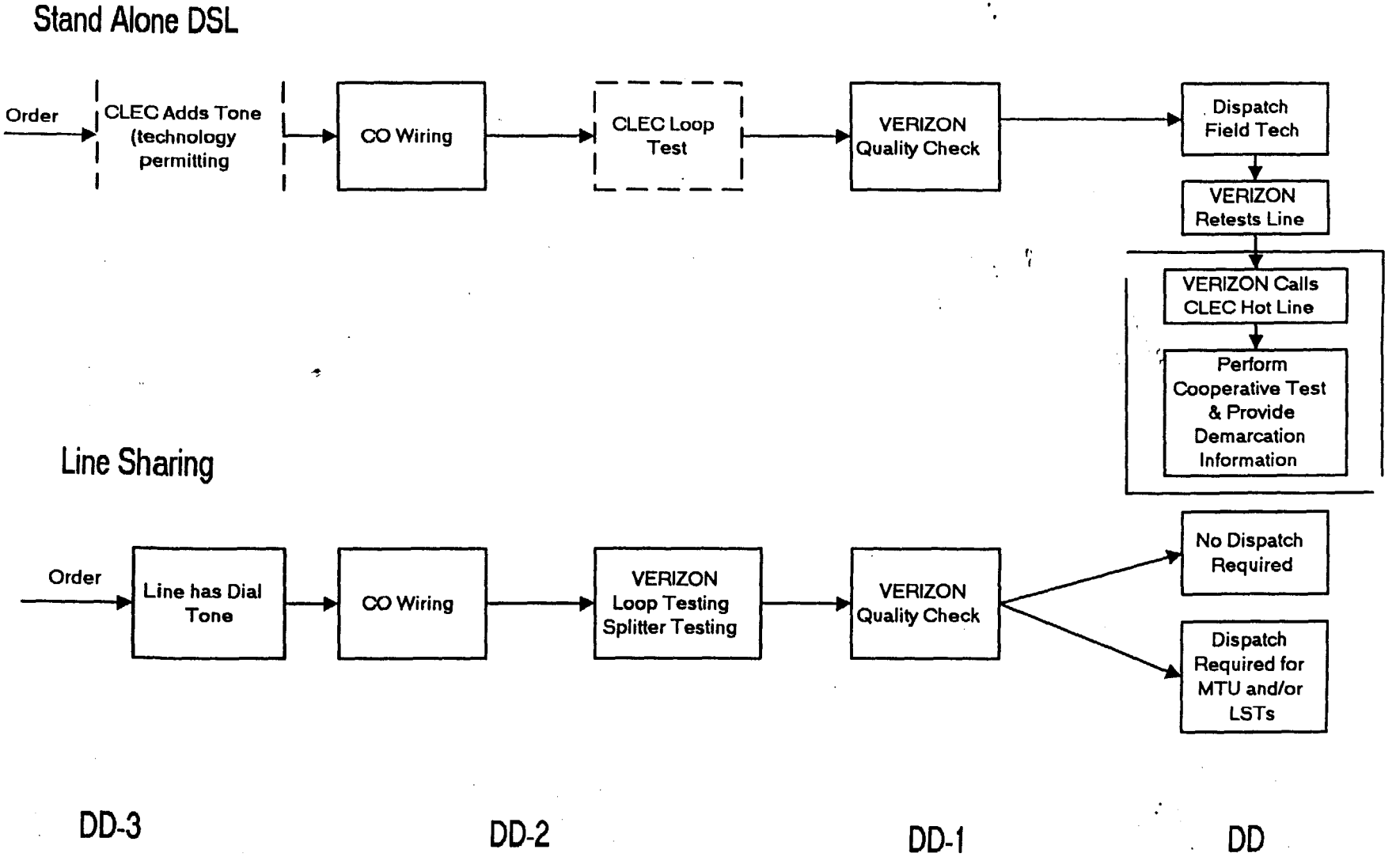
- **Provisioning**
  - 2w POTS Loop - SMARTS Clock (Force/Load)
  - Infospeed - 6 business days
  - xDSL Loop (1- 5 loops) - 6 business days from receipt of good LSR. If loop is not prequalified, 9 business days interval.
  - ISDN (1 - 12 lines, Retail) - 8 business days
  - 2w Digital (1 - 5 loops) - SMARTS Clock
- **Maintenance**
  - Monday to Saturday Appt vs. Monday to Friday Appt

Different Process Flows



Digital UNE Loops

Digital Loop Issues

- Loop Products
- Loop Provisioning Process
- Loop Testing Challenges
- Loop Qualification Information
- Loop Conditioning

Digital Loop Products

- **ADSL Loops**
  - Copper loops less than 18,000 feet without load coils
- **HDSL Loops**
  - Copper loops less than 12,000 feet without load coils
- **Digital Design Loop Offering**
  - Tariff offering of loop conditioning services on all lengths of copper loops
  - Removal of load coils on loops longer than 18,000 feet, Removal of bridge taps
  - Addition of electronics that extend the effective range of ISDN/IDSL equipment on longer loops

Digital Loop Provisioning Process

- **Pre Order**
  - CLEC may perform Loop Qualification
- **Order**
  - CLEC submits LSR
    - Loop qualification status noted on LSR or
    - Loop qualification or full loop makeup request
  - Verizon reviews LSR
    - Queries CLEC if corrections are required
    - Provides confirmation, order date and forwards to Provisioning if ok

Digital Loop Provisioning Process

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- **Installation**
  - Verizon provisions
    - Order proceeds through Verizon systems for inventory, assignment, activation and dispatch function
    - Central Office and field technician dispatched
  - CLEC & Verizon do joint cooperative test
    - Testing & demarc completed
  - Verizon completes
    - CLEC notified of status of order (Due date +1)
    - Order updated and sent to billing process

Digital Loop Provisioning Process

- **Process developed in NYPSC collaborative**
- **VZ is doing cooperative testing on DSL loop installations**
  - Provisioning performance has improved significantly
- **Installation interval for CLECs digital loops in parity with VZ retail ADSL service**
- **Order confirmation performance will improve as more CLECs use loop qualification database**

Loop Testing Challenges

- **Dry Copper Pair:**
  - No …
    - Dial Tone - Telephone Number
    - MLT availability Battery - NT-1, SPID
    - MTU or 1/2 Ringer
  - Tone - sometimes available, sometimes not
  - Training tone - intermittent and differs for each technology
  - Different Test Signatures:
    - Looking from Field to DSLAM: open, Line Unit
    - Looking from C.O. to Modem: SC, CPE, Router
  - Large variety of different loop technologies and equipment vendors

Digital Loop Qualification

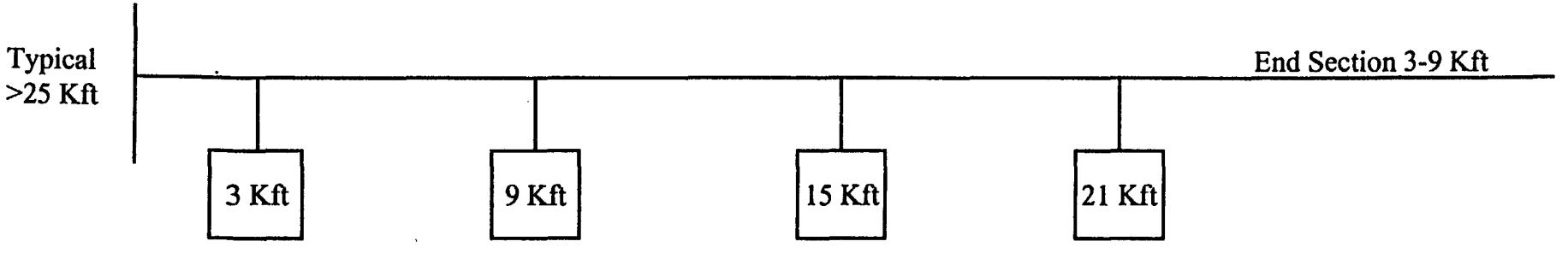
- **VZ provides a mechanized loop qualification database**
  - Identifies loops that meet ADSL loop technical requirements
  - Provides lengths of unloaded loops including those greater than 18K feet
  - Advises CLECs whether load coils or digital loop carrier are on loop
  - Database include over 90 percent of central offices with collocation
- **VZ provides manual loop qualifications on order confirmation within 3 days**
  - Provides same information as database; available for loops not in the database
- **VZ provides engineering queries within 3 days**
  - Provides physical loop length, number and location of load coils, length and location of bridge taps, gauge of the wire, location of digital loop carrier
  - Requires a search of complex paper records

Digital Loop Qualification

- **Loop Planning Rules (Embedded Network)**
  - Maximum loop resistance 1300 Ohms
  - Loading required on any loop over 18,000 ft
  - Bridge Tap on non loaded plant limited to 6,000 ft
  - Theoretical design = 2 gauges

Number of Loads at Loop Length

Kilofeet	1 to 18	19 to 24	25 to 30
# Loads	0	3	4



Cable Gauge vs. Loop Length

Kft of specific guage		Total Loop Length in Kilofeet														
		1 to 15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	26	All 26 guage	14.5	13.0	11.5	9.0	7.5	6.0	4.0	2.5	1.0						
	24		1.5	4.0	6.5	10.0	12.5	15.0	18.0	20.5	23.0	24.0	22.0	20.0	18.5	17.5	15.5
	22											1.0	4.0	7.0	9.5	11.5	14.5

Digital Loop Conditioning

- **VZ has tariffed standardized rates for loop conditioning**
  - Removal of load coils on any length of copper loop
  - Removal of bridge taps on any length of copper loop
  - Addition of electronics that extend the effective range of ISDN/IDSL equipment on longer loops
- **VZ provides alternative facilities on loops with DLC**
  - If alternative facilities are available to customer location and those facilities are DSL-capable, VZ will provision DSL loops using those alternative facilities at no additional charge